



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,472	09/10/2003	Nadi R. Itani	0876-CS-D1	4320

20284 7590 07/19/2007
CIRRUS LOGIC, INC.
CIRRUS LOGIC LEGAL DEPARTMENT
2901 VIA FORTUNA
AUSTIN, TX 78746

EXAMINER

LAM, HUNG H

ART UNIT	PAPER NUMBER
----------	--------------

2622

MAIL DATE	DELIVERY MODE
-----------	---------------

07/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/659,472

Applicant(s)

ITANI ET AL.

Examiner

Hung H. Lam

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-14 and 35-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-14 and 35-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 10 is objected to because of the following informalities: claim 10 should be changed to read as the following "the method...wherein ~~the~~ a chip gain has a maximum and a minimum gain value". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 3-12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Simerly (US-5,982,424).

With regarding **claim 3**, Simerly discloses a distributed gain control circuit (DGCC) comprising:

an imager signal source including a shutter (Fig. 1; iris 12; Col. 3, Ln. 16-22; Col. 5, Ln. 9-15);

a timing circuit for controlling said shutter and the production of signals from said imager signal source (Fig. 2; clock drivers);

a CDSNGA system (Fig. 2; CDS 30) for receiving imager signals from said imager signal source (CCD card 20);

an analog to digital converter (A/D 36) connected to said CDSNGA system for receiving an amplified imager signal stream from said CDSNGA system and converting the amplified imager signal stream into digital form (see the connection between A/D 36 and CDS 30);

a digital gain circuit connected to said analog to digital converter (see AGC 32);
and

an automatic gain control circuit (ASIC 40) for receiving an output digital level from said digital gains circuit for controlling the gain of said CDSNGA system (see connection from ASIC 40 to CDS 30; Col. 3, Ln. 22-Col. 4, Ln. 18), said digital and shutter gain circuit (Figs. 2-3; see control signal C62; Col. 5, LN. 9-20.).

With regarding **claim 4**, Simerly discloses the DGCC according wherein said AGC circuit is coupled to said timing circuit for controlling the production of signals from said imager signal source (Fig. 2; see the connection from ASIC 40 to clock drivers).

With regarding **claim 5**, Simerly discloses a method of gain control in an imaging system having a shutter (12), a digital gain circuit (AGC 32), and a CDSNGA circuit (CDS 30), including:

determining total gain for an imaging system (Col. 3, Ln. 22-Col. 4, Ln. 20);

determining the level of shutter gain to be applied in the operation of the imaging system (Col. 5, Ln. 9-20; shutter gain is inherently determined in order to control the amount of aperture opening of lens 8);

determining the level of analog gain to be applied in the operation of the imaging system (see AGC 32; Col. 3, Ln. 22-Col. 4, Ln. 20; the claim is broadly written; therefore, the Examiner broadly interpreted the AGC 32 or a CCD amplifier which inherently includes in a CCD as analog gain to be applied in the operation of the imaging system); and

determining the level of digital gain to be applied in the operation of the imaging system (Fig. 2; see connection from AGC 32 to ADC 36 and digital signal 510; the gain of the digital signal 510 from A/DC 36 is inherently determined in accordance with the analog gain generated by AGC 32).

With regarding **claim 6**, Simerly discloses the method wherein each gain setting for said imaging system is applied for the duration of a single frame (abstract; Col. 2, Ln. 10, 35; Col. 7, Ln. 20-Col. 9, Ln. 9).

With regarding **claim 7**, Simerly discloses the method including hierarchically adjusting shutter gain, analog (VGA) gain, and digital gain (see control signal C62, S6; wherein the gain of digital signal 510 is inherently adjusted accordance with the analog gain AGC 32).

With regarding **claim 8**, Simerly discloses the method wherein the shutter gain has maximum and minimum shutter gain values (Col. 3, Ln. 16-22; Col. 5, Ln. 9-15: a maximum and minimum shutter gain values are inherently included in order to open or close the iris 12).

With regarding **claim 9**, Simerly discloses the method wherein the analog (VGA) gain has maximum and minimum analog gain values (AGC 32; Col. 3, Ln. 22-Col. 4, Ln. 20).

With regarding **claim 10**, Simerly discloses the method wherein a chip gain has a maximum and a minimum gain value (AGC 32; Col. 3, Ln. 22-Col. 4, Ln. 20).

With regarding **claim 11**, Simerly discloses the method wherein the digital gain has a maximum and a minimum value (see connection from AGC 32 to A/D 36 and digital signal 510; Col. 3, Ln. 22-Col. 4, Ln. 20).

With regarding **claim 12**, Simerly discloses the method wherein the analog (VGA) gain and the digital gain remain at a constant level as the shutter gain is varied (Fig. 2; The analog gain and the gain of digital signal 510 are inherently varied or fixed accordance to one another. It is noticed that the Iris control signal line C62 is differed from AGC control signal line C2. Therefore, it is inherent that the analog and the digital

gain remain at a constant level while the shutter gain can be varied).

With regarding **claim 14**, Simerly discloses the method wherein the shutter gain and the digital gain remain at a constant level as the analog (VGA) gain is varied (it is inherent that the AGC 32 is controlled and operated differently from an inherent CCD amplifier; therefore, the shutter gain and the digital gain can be remained at a constant level while the CCD amplifier is inherently varied).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simerly in view of DeAngelis (US-5,657,077).

With regarding **claim 13**, Simerly discloses the wherein the shutter gain and the analog (VGA) gain remain at a constant level (it is inherent that both shutter gain and analog gain remain at constant). However, Simerly fails to explicitly disclose that the shutter gain and the analog (VGA) gain remain at a constant level as the digital gain is varied.

In the same field of endeavor, DeAngelis teaches a camera system also include a grey scale gain controller to adjust the digital output signal according to a pre-selected gain level, preferably selectable at the main control computer and preferably to a gain level corresponding to the digital values in the captured frames (Col. 3, Ln. 10-23). DeAngelis further teaches that the camera is completely computer controlled from a remote location for controlling focus, zoom, pan and all other camera functions (Col. 3, Ln. 19-23). In light of the teaching from DeAngelis, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Simerly by allowing a computer control to remotely control all other camera functions. The modifications thus allow the camera to be manipulated by a remote computer.

With regarding **claim 35**, Simerly fails to explicitly disclose the method wherein said constant level is user-settable.

In the same field of endeavor, DeAngelis teaches a camera wherein a user can select how fast the AGC control of the camera operates by adjusting the bandwidth of the gain control and thereby appropriately improving the displayed screen contrast (Col. 9, Ln. 20-44). In light of the teaching from DeAngelis, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Simerly by allowing a user to adjusting the bandwidth of the gain control. The modifications thus appropriately improve the displayed screen contrast (DeAngelis: Col. 9, Ln. 20-44).

With regarding **claim 36**, the claim contains the same limitations as claimed in claim 35. Therefore, claim 36 is analyzed and rejected as previously discussed in claim 35.

With regarding **claim 37**, the claim contains the same limitations as claimed in claim 35. Therefore, claim 37 is analyzed and rejected as previously discussed in claim 35.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Ishigami (US-2002/0,118,291) discloses a CCD having an amplifier output.

b) Sakaguchi (US-5,534,916) discloses a camera with digital gain control for aperture compensation.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

Art Unit: 2622

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LIN YE can be reached on 571-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

07/09/07

JAMES M. HANNETT
ART UNIT 2622

A handwritten signature in black ink, appearing to be 'J. Hannett', written in a cursive style.